

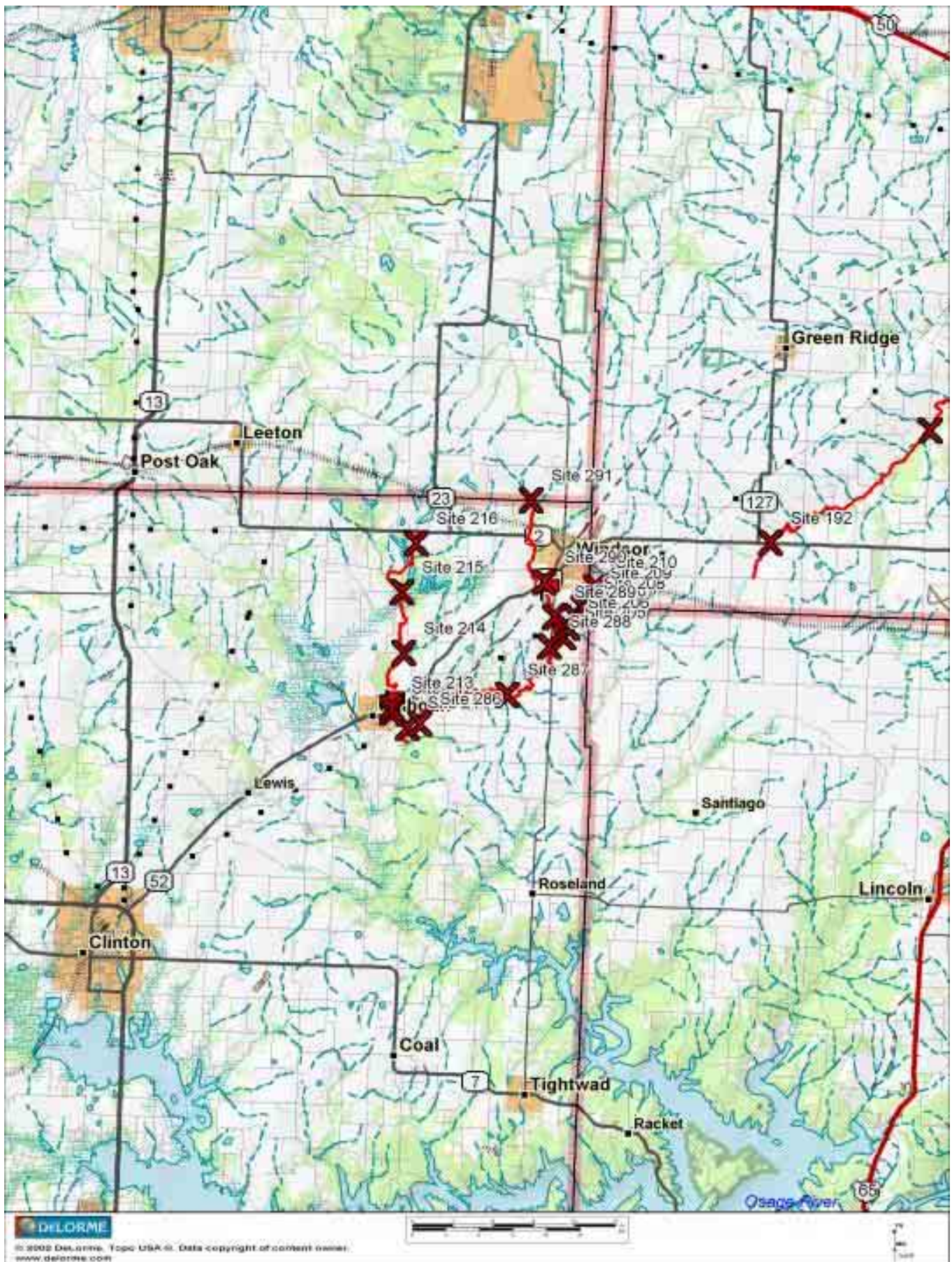
Use Attainability Analysis

for

WBID 1284 Middle Fork Tebo Creek

Submitted by
Tetra Tech, Inc

To
Missouri Department of Natural Resources
Water Protection Program



Field Data Sheets for Recreational Use Stream Surveys RECEIVED

Data Sheet A - Water Body Identification 2005 MAY 23 PM 2: 58

Water Body Name: (from USGS 7.5' quad)	MIDDLE FORK TEBB CREEK (211-216)
8-digit HUC:	10290108
Missouri WBID #:	1284
County:	HENRY
Upstream Legal Description:	
Downstream Legal Description:	
Upstream Coordinates: (UGS 84, ddd.ddddd)	N38.54389 W093.60213
Downstream Coordinates: (UGS 84, ddd.ddddd)	N38.46761 W093.61589
Discharger Facility Name(s):	MIDDLE FORK TEBB CREEK
Discharger Permit Number(s):	
Number of Sites Evaluated:	6
Name of Surveyor and Telephone Number:	CHAD BANDOOR, 410-356-8993
Organization:	TETRA TECH INC.
Position:	ASSOCIATE SCIENTIST

I, the undersigned, hereby affirm to the best of my knowledge, that all information reported on this UAA datasheet is true and accurate.

Signed: Chad Bandoor Date: 04/26/05

Field Data Sheets for Recreational Use Stream Surveys

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2005 MAY 23 PM 2: 58

Data Sheet B - Site Characterization

(A separate data sheet must be completed for each ~~water~~ PROTECTION PROGRAM)

Acc 19, 92

Missouri WBID #: 211 / Alternate	Site Location Description: Upstream of Rt 52 overpass	
Site GPS Coordinates: N 38.46939 W 093.61734		
Date & Time: 4-20-2005 1231	Facility Name: Middle Fk Tebo CR	
Personnel: CB, ELY	Permit Number:	
Current Weather Conditions: Overcast 75°	Weather Conditions for Past 7 days: Clear warm	
Photo Ids: Upstream: T736A 012	Downstream: T735A 011	Other:

Uses Observed*:

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:

Describe: (include number of individuals recreating, frequency of use, photo-documentation of evidence of recreational uses, etc.)

Sewage treatment plant on Right bank of reach

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Campgrounds
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Fence	<input type="checkbox"/> Steep slopes	<input checked="" type="checkbox"/> Other: STP, Forest	

Evidence of Human Use*:

<input checked="" type="checkbox"/> Roads	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Livestock Watering	<input type="checkbox"/> RV / ATV Tracks
<input type="checkbox"/> Rope swings	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle
<input type="checkbox"/> Other:				

Site Locations Map(s): Attach a map of entire segment with assessment sites clearly labeled. Mark any other items that may be of interest. (Include photographs)

*Some of this information is not intended to directly influence a decision on any one particular recreational use analysis but may point to conditions that need further analysis or that effect another use.

Stream Morphology:

Upstream View Physical Dimensions: in m: 0.25, .52, .86, 1.0, .70

<input type="checkbox"/> Riffle	Width (ft):	Length (ft):	Avg. Depth (ft):	Max. Depth (ft):
<input type="checkbox"/> Run	Width (ft):	Length (ft):	Avg. Depth (ft):	Max. Depth (ft):
<input checked="" type="checkbox"/> Pool	Width (ft): <u>8.3m</u>	Length (ft): <u>20m</u>	Avg. Depth (ft): <u>0.66m</u>	Max. Depth (ft): <u>1.0</u>
<input checked="" type="checkbox"/> Flow Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Estimated (ft ³ /sec):		

Downstream View Physical Dimensions: in m: .08, .18, .25, .22, .08

<input type="checkbox"/> Riffle	Width (ft):	Length (ft):	Avg. Depth (ft):	Max. Depth (ft):
<input checked="" type="checkbox"/> Run	Width (ft): <u>3.1m</u>	Length (ft): <u>20m</u>	Avg. Depth (ft): <u>0.162m</u>	Max. Depth (ft): <u>0.25m</u>
<input type="checkbox"/> Pool	Width (ft):	Length (ft):	Avg. Depth (ft):	Max. Depth (ft):
<input checked="" type="checkbox"/> Flow Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Estimated (ft ³ /sec): <u>3m / 3.6s = 0.83 m/s</u>		

Substrate*: (These values should add up to 100%.)

<u>10</u> % Cobble	<u>50</u> % Gravel	<u>0</u> % Sand	<u>20</u> % Silt	<u>20</u> % Mud/Clay	<u>0</u> % Bedrock
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Aquatic Vegetation*: (note amount of vegetation or algal growth at the assessment site)

<u>None</u>

Water Characteristics*: (Mark all that apply.)

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

Comments: Please attach additional comments (including information from interviews) to this form.

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I, the undersigned, hereby affirm to the best of my knowledge, that all information reported on this UAA datasheet is true and accurate.

Signed:  Date: 04-20-05

Organization: TEMA TECH INC. Position: ASSOCIATE SCIENTIST

Cheryl Lee Yarbrough 4-20-2005





Field Data Sheets for Recreational Use Stream Surveys

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Data Sheet B - Site Characterization

2005 MAY 23 PM 2: 58

(A separate data sheet must be completed for each site.)

WATER PROTECTION PROGRAM

Missouri WBID #: 212	Site Location Description: downstream 500m Rt 50 overpass	
Site GPS Coordinates: N 38.46761 W 093.61589		
Date & Time: 4-20-05 11:35	Facility Name: Middle Fk Tebo CR	
Personnel: Chad Barbour E. Lee Yarbrough	Permit Number:	
Current Weather Conditions: Overcast 75	Weather Conditions for Past 7 days: Clear warm	
Photo Ids: Upstream: T733A 009	Downstream: T734A 010	Other:

Uses Observed*:

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: (include number of individuals recreating, frequency of use, photo-documentation of evidence of recreational uses, etc.)				

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Campgrounds
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Fence	<input type="checkbox"/> Steep slopes	<input checked="" type="checkbox"/> Other: Forrest, grass field	

Evidence of Human Use*:

<input type="checkbox"/> Roads	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Livestock Watering	<input type="checkbox"/> RV / ATV Tracks
<input type="checkbox"/> Rope swings	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle
<input type="checkbox"/> Other:				

Site Locations Map(s): Attach a map of entire segment with assessment sites clearly labeled. Mark any other items that may be of interest. (Include photographs)

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Stream Morphology:

Upstream View Physical Dimensions: in m: .09, .34, .45, .44, .26

<input type="checkbox"/> Riffle	Width (ft):	Length (ft):	Avg. Depth (ft):	Max. Depth (ft):
<input checked="" type="checkbox"/> Run	Width (ft): <u>5.8 m</u>	Length (ft): <u>20 m</u>	Avg. Depth (ft): <u>0.316 m</u>	Max. Depth (ft): <u>0.45 m</u>
<input type="checkbox"/> Pool	Width (ft):	Length (ft):	Avg. Depth (ft):	Max. Depth (ft):
<input checked="" type="checkbox"/> Flow	Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Estimated (ft ³ /sec): <u>3 m / 10.6 s</u> = <u>0.30 m/s</u>	

5m 59-075 14-285 38-455

Downstream View Physical Dimensions: in m: 0.1, .44, .75, .88, .58

<input type="checkbox"/> Riffle	Width (ft):	Length (ft):	Avg. Depth (ft):	Max. Depth (ft):
<input type="checkbox"/> Run	Width (ft):	Length (ft):	Avg. Depth (ft):	Max. Depth (ft):
<input checked="" type="checkbox"/> Pool	Width (ft): <u>7.2 m</u>	Length (ft): <u>20 ft</u>	Avg. Depth (ft): <u>0.55 m</u>	Max. Depth (ft): <u>0.75 m</u>
<input checked="" type="checkbox"/> Flow	Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Estimated (ft ³ /sec): <u>3 m / 17 s</u> = <u>0.18 m/s</u>	

3m 38-54 05-22 28-46

Substrate*: (These values should add up to 100%.)

<u>5</u> % Cobble	<u>40</u> % Gravel	<u>0</u> % Sand	<u>0</u> % Silt	<u>55</u> % Mud/Clay	<u>0</u> % Bedrock
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Aquatic Vegetation*: (note amount of vegetation or algal growth at the assessment site)

<u>None</u>

Water Characteristics*: (Mark all that apply.)

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input checked="" type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input checked="" type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input type="checkbox"/> None	<input type="checkbox"/> Other:

Comments: Please attach additional comments (including information from interviews) to this form.

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I, the undersigned, hereby affirm to the best of my knowledge, that all information reported on this UAA datasheet is true and accurate.

Signed:  Date: 04/20/05

Organization: TETRA Tech Inc. Position: ASSOCIATE SCIENTIST

Elizabeth Lee Yarbrough 4-20-2005



Field Data Sheets for Recreational Use Stream Surveys

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Data Sheet B - Site Characterization

2005 MAY 23 PM 2:58

(A separate data sheet must be completed for each site.)

WATER PROTECTION PROGRAM

ACC 50.1

Missouri WBID #: 213	Site Location Description: Overpass off of 52
Site GPS Coordinates: N38.46822 W 095.61671	
Date & Time: 11-20-05 1100	Facility Name: Middle Flk Tebo CR
Personnel: Chad Barbour Lee Yarbrough	Permit Number:
Current Weather Conditions: Overcast 74°	Weather Conditions for Past 7 days: Clear, warm
Photo Ids: Upstream: T731A 007	Downstream: T732A 008 Other:

Uses Observed*:

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:

Describe: (include number of individuals recreating, frequency of use, photo-documentation of evidence of recreational uses, etc.)

Treatment plant on upstream portion of Reach

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Campgrounds
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Fence	<input checked="" type="checkbox"/> Steep slopes	<input type="checkbox"/> Other:	

Evidence of Human Use*:

<input checked="" type="checkbox"/> Roads	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Livestock Watering	<input type="checkbox"/> RV / ATV Tracks
<input type="checkbox"/> Rope swings	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle
<input type="checkbox"/> Other:				

Site Locations Map(s): Attach a map of entire segment with assessment sites clearly labeled. Mark any other items that may be of interest. (Include photographs)

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Stream Morphology:

Upstream View Physical Dimensions: in m: .18, .22, .20, .30, .40, .15

<input type="checkbox"/> Riffle	Width (ft):	Length (ft):	Avg. Depth (ft):	Max. Depth (ft):
<input checked="" type="checkbox"/> Run	Width (ft): <u>8.3m</u>	Length (ft): <u>20m</u>	Avg. Depth (ft): <u>0.29m</u>	Max. Depth (ft): <u>.40m</u>
<input type="checkbox"/> Pool	Width (ft):	Length (ft):	Avg. Depth (ft):	Max. Depth (ft):
<input checked="" type="checkbox"/> Flow	Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Estimated (ft/sec): <u>3m / 27s</u>	<u>= 0.11 m/s</u>

Downstream View Physical Dimensions: .15, .25, .25, .29, .16

<input type="checkbox"/> Riffle	Width (ft):	Length (ft):	Avg. Depth (ft):	Max. Depth (ft):
<input checked="" type="checkbox"/> Run	Width (ft): <u>8.3m</u>	Length (ft): <u>20m</u>	Avg. Depth (ft): <u>0.22m</u>	Max. Depth (ft): <u>0.29m</u>
<input type="checkbox"/> Pool	Width (ft):	Length (ft):	Avg. Depth (ft):	Max. Depth (ft):
<input checked="" type="checkbox"/> Flow	Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Estimated (ft/sec): <u>3m / 13s</u>	<u>= 0.23 m/s</u>

Substrate*: (These values should add up to 100%.)

<u>0</u> % Cobble	<u>30</u> % Gravel	<u>5</u> % Sand	<u>30</u> % Silt	<u>35</u> % Mud/Clay	% Bedrock
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Aquatic Vegetation*: (note amount of vegetation or algal growth at the assessment site)

Aquatic plants & algae

Water Characteristics*: (Mark all that apply.)

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input type="checkbox"/> Clear	<input checked="" type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input checked="" type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input type="checkbox"/> None	<input type="checkbox"/> Other:

Comments: Please attach additional comments (including information from interviews) to this form.

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I, the undersigned, hereby affirm to the best of my knowledge, that all information reported on this UAA datasheet is true and accurate.

Signed: [Signature] Date: 04-20-05

Organization: TEMA TECH INC. Position: ASSOCIATE SCIENTIST

Egy 4-20-2004

MISSOURI RECREATIONAL USE STREAM SURVEY FIELD AUDIT CHECKLIST

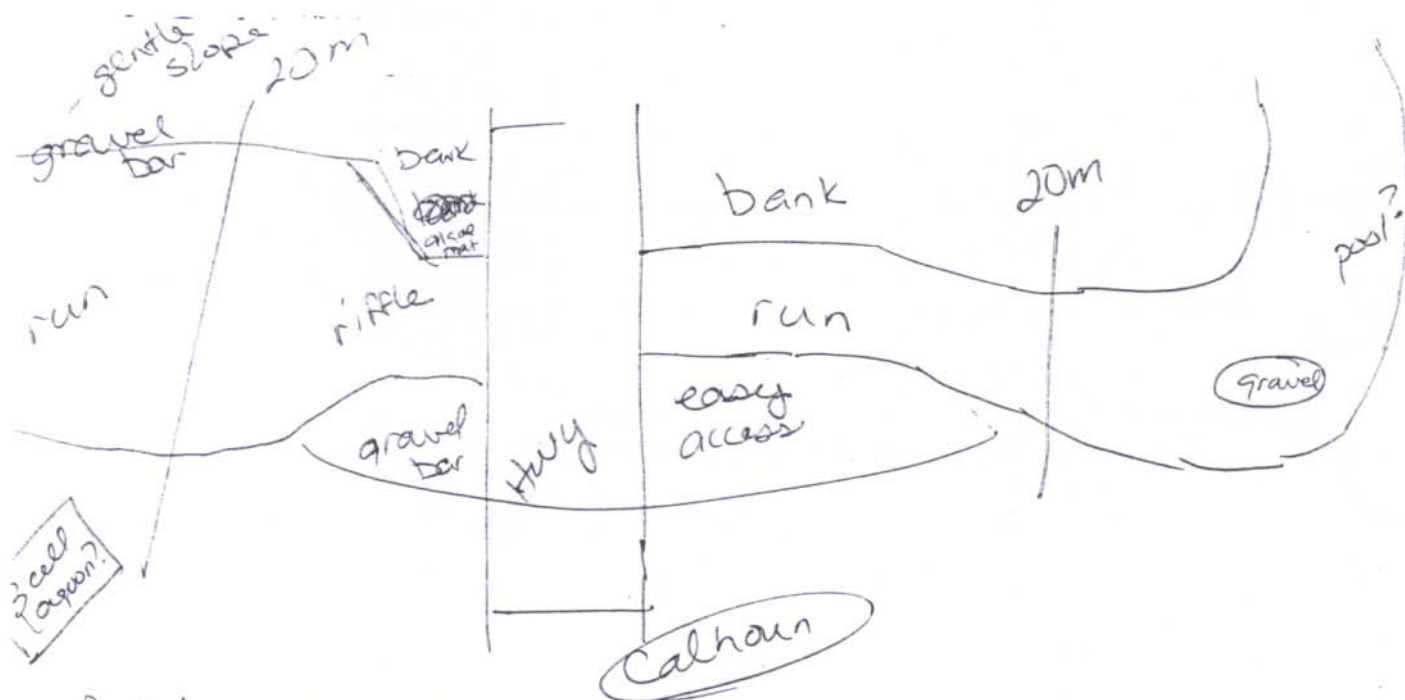
Evaluation Date: 4-20-05		
Audit Team Member(s):		
Name	Organization	Phone
Stacia Bax	MDNR	573-526-2838
Site ID:	Stream Name: Tebo Creek	
Field Team Members		
1 Chad	3	5
2 Lee	4	6
Other Observers Present During Evaluation:		
Name	Organization	Phone

10:57am - 11:29.

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2005 MAY 23 PM 3:00
WATER PROTECTION PROGRAM

Note: No site # recorded on audit sheet. Based on Time recorded above, I determined this site to be #213.

4/27/05 *Henry Latimer*
Henry Latimer
Tetra Tech 410-356-8993



- fairly easy access
- gravel 15%, sand 25%, silt/mud 50% cobble/boulders 8% debris (woody) 2%
- Deer tracks + raccoon tracks.
- mostly steep banks - potential for access at bridge + gravel bars ~~though~~
- algae + aquatic plants.
- shotgun shell on gravel bar
- mussel shells on gravel bar (open) ~ 3" long

protocol
 → site location pools vs runs etc
 → urban area defined

AUDIT CHECKLIST

#213

GPS used to obtain fix at or near site?	<input checked="" type="radio"/> Y	N	N/A
GPS data recorded on field form?	<input checked="" type="radio"/> Y	N	N/A
Photographs of site taken (if appropriate)?	<input checked="" type="radio"/> Y	N	N/A
Placard with site ID printed on it is the first photograph?	<input checked="" type="radio"/> Y	N	N/A
Picture file number recorded on Field Form?	<input checked="" type="radio"/> Y	N	N/A
Mean channel width at X-site determined based on measurement?	<input checked="" type="radio"/> Y	N	N/A
Area around site inspected for evidence of primary contact recreational and other human uses?	<input checked="" type="radio"/> Y	N	N/A
Pictures of evidence of uses taken?	Y	N	<input checked="" type="radio"/> N/A
Picture file number recorded on field forms?	Y	N	<input checked="" type="radio"/> N/A
Measured upstream channel width at representative transect?	<input checked="" type="radio"/> Y	N	N/A
Measured downstream channel width at representative transect?	<input checked="" type="radio"/> Y	N	N/A
Measured average depth in upstream portion of the site?	<input checked="" type="radio"/> Y	N	N/A
Measured maximum depth in downstream portion of the site?	<input checked="" type="radio"/> Y	N	N/A
Was a reasonable effort made to locate deepest point at each site?	<input checked="" type="radio"/> Y	N	N/A
Velocity measured in the upstream portion of the site using a neutrally buoyant object along measured length timed and recorded correctly for at least three trials?	<input checked="" type="radio"/> Y	N	N/A
Velocity measured in the downstream portion of the site using a neutrally buoyant object along measured length timed and recorded correctly for at least three trials?	<input checked="" type="radio"/> Y	N	N/A
Does auditors assessment of substrate types and proportions at the site agree with that of the field team?	<input checked="" type="radio"/> Y	N	N/A
Were interviews conducted with available residents?	Y	N	<input checked="" type="radio"/> N/A
Are the field sheets filled out completely and signed at the end of the site assessment?	<input checked="" type="radio"/> Y	N	N/A
Did the field team QC officer inspect the field forms for completion prior to leaving the site?	<input checked="" type="radio"/> Y	N	N/A
Overall, were the field sampling protocols followed correctly?	<input checked="" type="radio"/> Y	N	N/A

SIGNATURES

Stacy Bay 4-20-05
 Evaluator Date

Team Representative

Date



Field Data Sheets for Recreational Use Stream Surveys

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2005 MAY 23 PM 2:59

Data Sheet B - Site Characterization

(A separate data sheet must be completed for each site) WATER PROTECTION PROGRAM

ACC 30.14

Missouri WBID #: 214	Site Location Description: Overpass off of NE950		
Site GPS Coordinates: N 38 49346 W 093 41063	Date & Time: 4-20-05 1015		
Date & Time: 4-20-05 1015	Facility Name: Butter WWTP middle Fk Tebo Cr		
Personnel: Chad Barbour Lee Yarbrough	Permit Number:		
Current Weather Conditions: Clear, 73°	Weather Conditions for Past 7 days: Clear, Warm		
Photo Ids: Upstream: 1729A ⁰⁰⁵	Downstream: 1730A ⁰⁰⁶	Other:	

Uses Observed*:

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:

Describe: (include number of individuals recreating, frequency of use, photo-documentation of evidence of recreational uses, etc.)
 There is a large pool @ the x site approx depth 3.5m. (Extra data from area just within reach)

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input checked="" type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Campgrounds
<input checked="" type="checkbox"/> Boating accesses	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> No trespass sign	<input checked="" type="checkbox"/> Fence	<input checked="" type="checkbox"/> Steep slopes	<input type="checkbox"/> Other:	

Evidence of Human Use*:

<input checked="" type="checkbox"/> Roads	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Livestock Watering	<input type="checkbox"/> RV / ATV Tracks
<input type="checkbox"/> Rope swings	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle
<input type="checkbox"/> Other:				

Site Locations Map(s): Attach a map of entire segment with assessment sites clearly labeled. Mark any other items that may be of interest. (Include photographs)

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Stream Morphology:

Upstream View Physical Dimensions: in m: 0.1, 0.27, 0.34, 0.45, 0.18

<input type="checkbox"/> Riffle	Width (ft):	Length (ft):	Avg. Depth (ft):	Max. Depth (ft):
<input checked="" type="checkbox"/> Run	Width (ft): <u>6.5m</u>	Length (ft): <u>20m</u>	Avg. Depth (ft): <u>0.268m</u>	Max. Depth (ft): <u>0.45m</u>
<input type="checkbox"/> Pool	Width (ft):	Length (ft):	Avg. Depth (ft):	Max. Depth (ft):
<input checked="" type="checkbox"/> Flow	Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Estimated (ft/sec): <u>3m / 14s</u>	<u>= 0.21 m/s</u>

Downstream View Physical Dimensions: m: 0.09, 0.28, 0.52, 0.63, 0.25

<input type="checkbox"/> Riffle	Width (ft):	Length (ft):	Avg. Depth (ft):	Max. Depth (ft):
<input checked="" type="checkbox"/> Run	Width (ft): <u>7.7m</u>	Length (ft): <u>20m</u>	Avg. Depth (ft): <u>0.354m</u>	Max. Depth (ft): <u>0.63m</u>
<input type="checkbox"/> Pool	Width (ft):	Length (ft):	Avg. Depth (ft):	Max. Depth (ft):
<input checked="" type="checkbox"/> Flow	Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Estimated (ft/sec): <u>3m / 34s</u>	<u>= 0.09 m/s</u>

Substrate*: (These values should add up to 100%.)

<u>0</u> % Cobble	<u>65</u> % Gravel	<u>20</u> % Sand	<u>0</u> % Silt	<u>15</u> % Mud/Clay	<u>0</u> % Bedrock
-------------------	--------------------	------------------	-----------------	----------------------	--------------------

Aquatic Vegetation*: (note amount of vegetation or algal growth at the assessment site)

<u>Filamentous algae throughout.</u>

Water Characteristics*: (Mark all that apply.)

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input checked="" type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input checked="" type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input type="checkbox"/> None	<input type="checkbox"/> Other:

Comments: Please attach additional comments (including information from interviews) to this form.

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that effect another use.

I, the undersigned, hereby affirm to the best of my knowledge, that all information reported on this UAA datasheet is true and accurate.

Signed: [Signature] Date: 04-20-05

Organization: TEYNA TECH INC. Position: ASSOCIATE SCIENTIST

EY 4-20-05

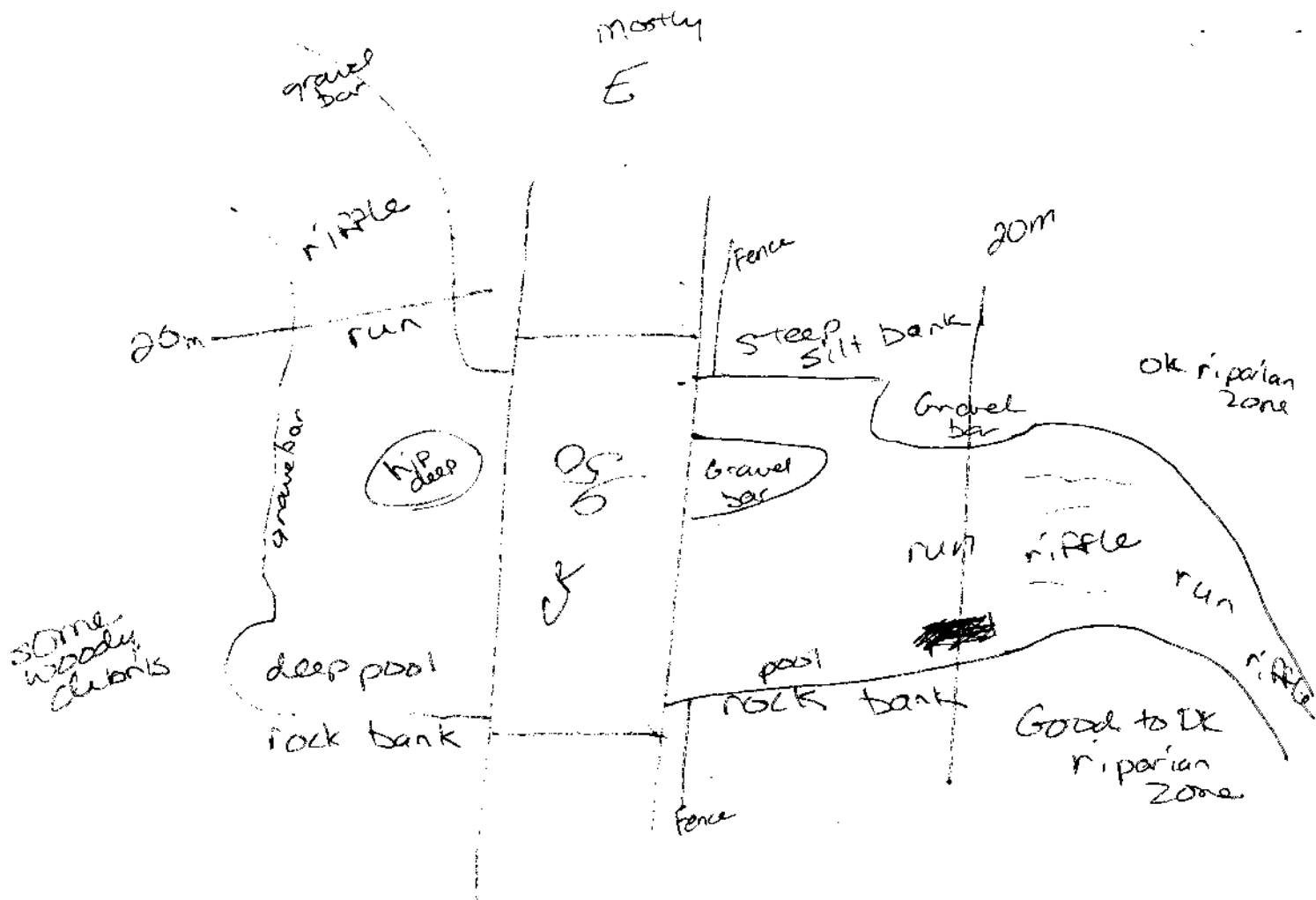
MISSOURI RECREATIONAL USE STREAM SURVEY FIELD AUDIT CHECKLIST

Evaluation Date: 4-20-05		
Audit Team Member(s):		
Name	Organization	Phone
Stacia Bax	MDNR	573-526-1838
Site ID: 214	Stream Name: E Teto Cr	
Field Team Members		
1 Chad	3	5
2 Lee	4	6
Other Observers Present During Evaluation:		
Name	Organization	Phone

start 10:15 am
end 10:48 am

CR 950

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2005 MAY 23 PM 3:01
WATER PROTECTION PROGRAM



Boulders 29% (only near bridge / rock bluff)
 Silt + mud 15%
 algae = some
 Sand + gravel 83%

Clear water bottom = murky
 ~73° F

- Accessable from gravel bar area near bank
- Steep slopes around bridge
- beer bottle on bridge
- Wind blowing opposite direction of US flow

wind
 →
 flow

#214

AUDIT CHECKLIST

GPS used to obtain fix at or near site?	<input checked="" type="radio"/> Y	N	N/A
GPS data recorded on field form?	<input checked="" type="radio"/> Y	N	N/A
Photographs of site taken (if appropriate)?	<input checked="" type="radio"/> Y	N	N/A
Placard with site ID printed on it is the first photograph?	<input checked="" type="radio"/> Y	N	N/A
Picture file number recorded on Field Form?	<input checked="" type="radio"/> Y	N	N/A
Mean channel width at X-site determined based on measurement?	<input checked="" type="radio"/> Y	N	N/A
Area around site inspected for evidence of primary contact recreational and other human uses?	<input checked="" type="radio"/> Y	N	N/A
Pictures of evidence of uses taken?	Y	N	<input checked="" type="radio"/> N/A
Picture file number recorded on field forms?	Y	N	<input checked="" type="radio"/> N/A
Measured upstream channel width at representative transect?	<input checked="" type="radio"/> Y	N	N/A
Measured downstream channel width at representative transect?	<input checked="" type="radio"/> Y	N	N/A
Measured average depth in upstream portion of the site?	<input checked="" type="radio"/> Y	N	N/A
Measured maximum depth in downstream portion of the site?	<input checked="" type="radio"/> Y	N	N/A
Was a reasonable effort made to locate deepest point at each site?	<input checked="" type="radio"/> Y	N	N/A
Velocity measured in the upstream portion of the site using a neutrally buoyant object along measured length timed and recorded correctly for at least three trials?	<input checked="" type="radio"/> Y	N	N/A
Velocity measured in the downstream portion of the site using a neutrally buoyant object along measured length timed and recorded correctly for at least three trials?	<input checked="" type="radio"/> Y	N	N/A
Does auditors assessment of substrate types and proportions at the site agree with that of the field team?	<input checked="" type="radio"/> Y	N	N/A
Were interviews conducted with available residents?	Y	N	<input checked="" type="radio"/> N/A
Are the field sheets filled out completely and signed at the end of the site assessment?	<input checked="" type="radio"/> Y	N	N/A
Did the field team QC officer inspect the field forms for completion prior to leaving the site?	<input checked="" type="radio"/> Y	N	N/A
Overall, were the field sampling protocols followed correctly?	<input checked="" type="radio"/> Y	N	N/A

more than
chest high
(most
likely)

SIGNATURES

Stacy Bay 4-20-05
Evaluator Date

Team Representative Date



Field Data Sheets for Recreational Use Stream Surveys

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Data Sheet B - Site Characterization

2005 MAY 23 PM 2:59

(A separate data sheet must be completed for each site) WATER PROTECTION PROGRAM

Missouri WBID #: 215	Site Location Description: Overpass off of CR NE 1130		
Site GPS Coordinates: N38.51865° W093.6116			
Date & Time: 4-20-05 933	Facility Name: Butler WWTP Middle Flk Tebock		
Personnel: Chad Barbour Lee Yarbrough	Permit Number: 8		
Current Weather Conditions: Clear 75°F	Weather Conditions for Past 7 days: Clear, Warm		
Photo Ids: Upstream: 1727A 003	Downstream: 1728A 004	Other:	

Uses Observed*:

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:

Describe: (include number of individuals recreating, frequency of use, photo-documentation of evidence of recreational uses, etc.)

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Campgrounds
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input checked="" type="checkbox"/> No trespass sign	<input checked="" type="checkbox"/> Fence	<input checked="" type="checkbox"/> Steep slopes	<input type="checkbox"/> Other:	

Evidence of Human Use*:

<input checked="" type="checkbox"/> Roads	<input checked="" type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Livestock Watering	<input checked="" type="checkbox"/> RV / ATV Tracks
<input type="checkbox"/> Rope swings	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle
<input type="checkbox"/> Other:				

Site Locations Map(s): Attach a map of entire segment with assessment sites clearly labeled. Mark any other items that may be of interest. (Include photographs)

*Some of this information is not intended to directly influence a decision on any one particular recreational use analysis but may point to conditions that need further analysis or that effect another use.

Stream Morphology:

Upstream View Physical Dimensions: 0.1m, 0.24m, 0.31m, 0.55m, 0.15m

<input type="checkbox"/> Riffle	Width (ft):	Length (ft):	Avg. Depth (ft):	Max. Depth (ft):
<input checked="" type="checkbox"/> Run	Width (ft): <u>4.0m</u>	Length (ft): <u>20m</u>	Avg. Depth (ft): <u>0.23m</u>	Max. Depth (ft): <u>0.35m</u>
<input type="checkbox"/> Pool	Width (ft):	Length (ft):	Avg. Depth (ft):	Max. Depth (ft):
<input type="checkbox"/> Flow Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Estimated (ft ³ /sec): <u>18.6s / 3m = 0.14 m/s</u>		

Downstream View Physical Dimensions: 14m, 0.4m, 7.5m, 0.75m, 0.8m, 0.32m

<input type="checkbox"/> Riffle	Width (ft):	Length (ft):	Avg. Depth (ft):	Max. Depth (ft):
<input type="checkbox"/> Run	Width (ft):	Length (ft):	Avg. Depth (ft):	Max. Depth (ft):
<input checked="" type="checkbox"/> Pool	Width (ft): <u>7.1m</u>	Length (ft): <u>20m</u>	Avg. Depth (ft): <u>0.458m</u>	Max. Depth (ft): <u>0.75m</u>
<input checked="" type="checkbox"/> Flow Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Estimated (ft ³ /sec): <u>58s / 3m = 0.05 m/s</u>		

Substrate*: (These values should add up to 100%.)

<u>0</u> % Cobble	<u>60</u> % Gravel	<u>20</u> % Sand	<u>10</u> % Silt	<u>10</u> % Mud/Clay	<u>0</u> % Bedrock
-------------------	--------------------	------------------	------------------	----------------------	--------------------

Aquatic Vegetation*: (note amount of vegetation or algal growth at the assessment site)

<u>Algae growing throughout (filamentous algae)</u>

Water Characteristics*: (Mark all that apply.)

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input type="checkbox"/> Clear	<input checked="" type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input checked="" type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input type="checkbox"/> None	<input type="checkbox"/> Other:

Comments: Please attach additional comments (including information from interviews) to this form.

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that effect another use.

I, the undersigned, hereby affirm to the best of my knowledge, that all information reported on this UAA datasheet is true and accurate.

Signed: [Signature] Date: 04-20-05Organization: TEPA TECH INC. Position: ASSISTANT SCIENTIST

Elizabeth du Yarbrough 4-20-05

#215

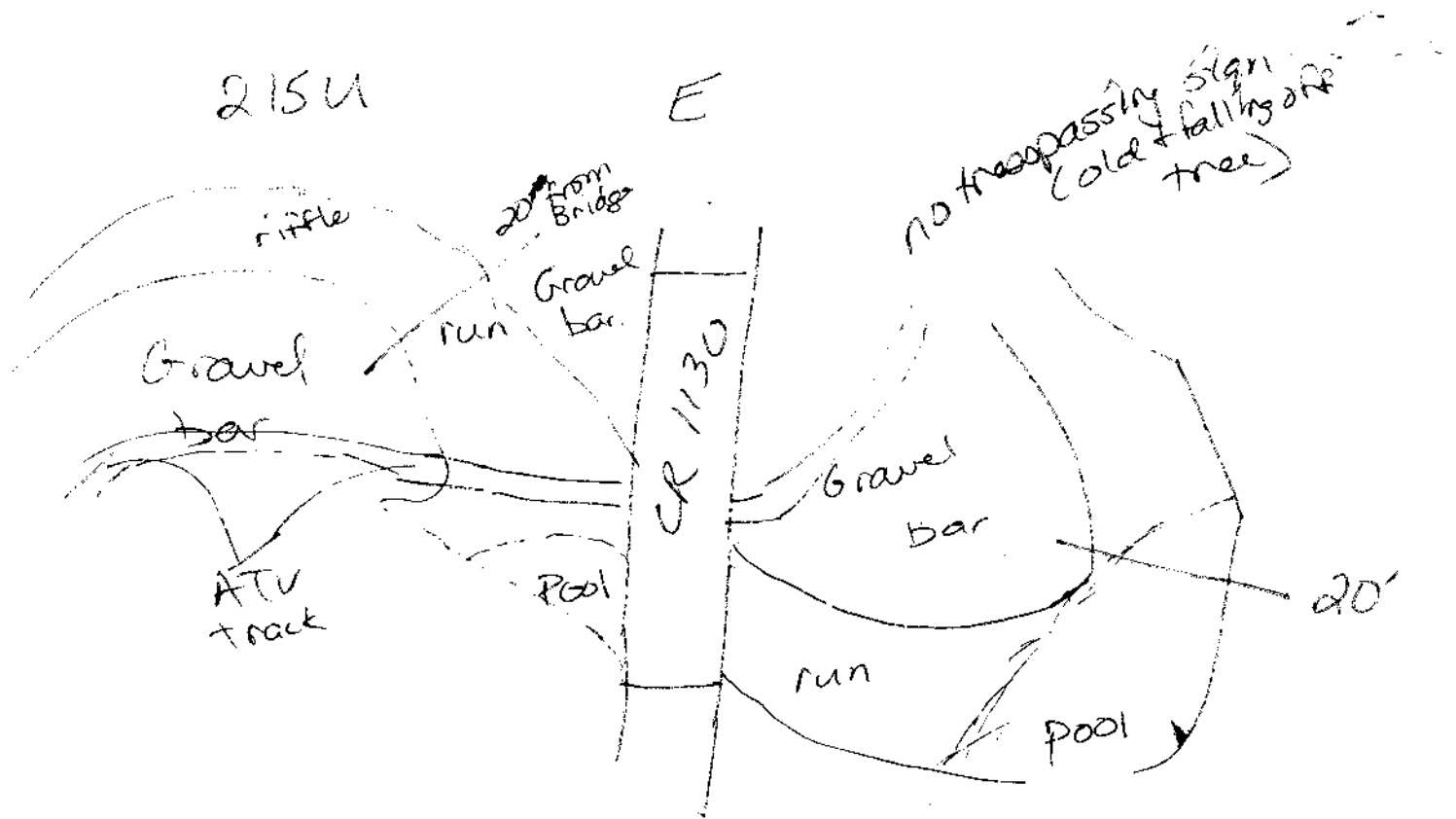
MISSOURI RECREATIONAL USE STREAM SURVEY FIELD AUDIT CHECKLIST

Evaluation Date: 4-20-05		
Site # 215		
Audit Team Member(s):		
Name	Organization	Phone
Stacia Bax	MDNR	573-526-7838
Site ID:	Stream Name:	
Field Team Members		
1 Chad	3	5
2 Leo	4	6
Other Observers Present During Evaluation:		
Name	Organization	Phone

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2005 MAY 23 PM 3:01
WATER PROTECTION PROGRAM

2154

E



- clear water
- milky bottom
- oil shine
- algae
- good riparian zone
- steep banks where there is no gravel bar
- Stream banks appear stable
- ~75% gravel 25% mud/silt (some woody debris)
- measured depth about every 2 feet across transect
- used a stick floating on surface to measure flow along certain distance
- water is at baseflow - maybe a little lower than normal or what it has been.

ended at 10:08am

215

AUDIT CHECKLIST

GPS used to obtain fix at or near site?	<input checked="" type="radio"/> Y	N	N/A
GPS data recorded on field form?	<input checked="" type="radio"/> Y	N	N/A
Photographs of site taken (if appropriate)?	<input checked="" type="radio"/> Y	N	N/A
Placard with site ID printed on it is the first photograph?	<input checked="" type="radio"/> Y	N	N/A
Picture file number recorded on Field Form?	<input checked="" type="radio"/> Y	N	N/A
Mean channel width at X-site determined based on measurement?	<input checked="" type="radio"/> Y	N	N/A
Area around site inspected for evidence of primary contact recreational and other human uses?	<input checked="" type="radio"/> Y	N	N/A
Pictures of evidence of uses taken?	Y	N	<input checked="" type="radio"/> N/A
Picture file number recorded on field forms?	Y	N	<input checked="" type="radio"/> N/A
Measured upstream channel width at representative transect?	<input checked="" type="radio"/> Y	N	N/A
Measured downstream channel width at representative transect?	<input checked="" type="radio"/> Y	N	N/A
Measured average depth in upstream portion of the site?	<input checked="" type="radio"/> Y	N	N/A
Measured maximum depth in downstream portion of the site?	<input checked="" type="radio"/> Y	N	N/A
Was a reasonable effort made to locate deepest point at each site?	Y	<input checked="" type="radio"/> N	N/A
Velocity measured in the upstream portion of the site using a neutrally buoyant object along measured length timed and recorded correctly for at least three trials?	<input checked="" type="radio"/> Y	N	N/A
Velocity measured in the downstream portion of the site using a neutrally buoyant object along measured length timed and recorded correctly for at least three trials?	<input checked="" type="radio"/> Y	N	N/A
Does auditors assessment of substrate types and proportions at the site agree with that of the field team?	<input checked="" type="radio"/> Y	N	N/A
Were interviews conducted with available residents?	Y	N	<input checked="" type="radio"/> N/A
Are the field sheets filled out completely and signed at the end of the site assessment?	<input checked="" type="radio"/> Y	N	N/A
Did the field team QC officer inspect the field forms for completion prior to leaving the site?	<input checked="" type="radio"/> Y	N	N/A
Overall, were the field sampling protocols followed correctly?	<input checked="" type="radio"/> Y	N	N/A

they went
20m US
+ DS from
bridge
- they mention
this could
be a fault
in the
method

no, one at
site during
survey

SIGNATURES

Stacia Box 9/29/05
Evaluator Date

Team Representative Date



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#1

2005 APR 28 AM 10:23

Date:
WATER PROTECTION PROGRAM

Site identifier:

SITE 216
middle fork
TEBO a

Page 1 of 3

Field Audit Checklist

Field work for Use Attainability Analysis for Contact Recreational Beneficial Use in Missouri

Overview

This checklist documents observations by an auditor (not from the State of Missouri) for field work performed according to "Recreational Use Attainability Analysis Protocol", Missouri Department of Natural Resources, Water Protection Program, November 3, 2004, and, "Field Data for Use Attainability Analysis (UAA)s for Contact Recreation Beneficial Use in Missouri", Tetra Tech, March 8, 2005. The purpose of the audit is to document the extent to which the field team follow the procedures in the protocol and the QAPP. The auditor does not perform simultaneous activities specified in the protocol and the QAPP for the purpose of comparing results obtained by the auditor and the field team. The field work is conducted here under Contract No. EP-C-04-030, Work Assignment No. B-15.

Procedure

The auditor arranges with the field workers to meet and accompany the field team for one or more site visits. When the auditor first meets the field team on the day of the field audit, the auditor provides the field team with a copy of this checklist. The auditor accompanies the field team to one or more site visits scheduled for the day. At each site, the auditor observes the work of the field team, and marks this checklist as events are observed. A new checklist is completed for each different site visited and audited. At the end of each site visit, both the field team and the auditor sign and date this checklist, attesting that this audit was performed as represented by this checklist and the markings thereon. After the day's work is complete, the auditor provides xerox copies of the completed checklists to a designated representative of the field team, and sends the original completed checklists to the State of Missouri.

Checklist

Date: 21 Apr 05

Time of arrival at site: 8:47 AM

Identifier of site: 216

1. (Protocol pg. 16) Does the field team have a 7.5 minute USGS topographic quadrangle map for the location of this site? DeLorme Wisconsin
2. (Protocol pg. 16) Does the field team measure and record location of the site using a GPS unit? yes
3. (Protocol pg. 16) Are the GPS location data recorded in UTM, NAD 83? degrees minute seconds
4. (Protocol pg. 16) Are the start and end points (upstream and downstream coordinates) recorded on Data Sheet A? yes
5. (Protocol pg. 16) Are the narrative site assessments recorded on the forms provided in the protocol? yes
6. (Protocol pg. 16) Is information for this site recorded on a new form? yes
7. (protocol pg. 16) Is a photographic record made of this site? yes
8. (Protocol pg. 16) Do the photographs include an upstream view and a downstream view? yes
9. (Protocol pg. 16) If the team discovers evidence of observed or potential use, is a photograph taken documenting the evidence? NA
10. (Protocol pg. 16) Are the photographs catalogued in the field notes in a manner that indicates
site location? yes
date? no
view orientation? yes
what is being shown? yes
11. (Protocol pg. 16) If people are present, does the field team interview the people? NA
12. (Protocol pg 16) If an interview occurs, does the field team obtain and record in the field notes
history of the water body? NA
legal name of person interviewed?
address of person interviewed?
13. (Protocol!) At the end of the site observation, is Data Sheet A (one sheet) completed and signed? yes
14. (Protocol) At the end of the site observation, is Data Sheet B (two sheets) completed and signed? yes
15. (QAPP pg 13) Does the field team have a list of equipment and expendable supplies? yes

16. (QAPP pg 13) Does the field team have backup equipment? *no*
17. (QAPP pg 13) Have any battery-powered equipment been fully charged? *yes*
18. (QAPP pg 14) If the field team notices any deviations from the planned survey, does the field team record the deviations on the field forms? *NA*
19. (QAPP pg 14) Are all entries made in ink with no erasures? *yes*
20. (QAPP pg 14) Are any incorrect entries crossed out with a single strike mark, initialed and dated? *yes*
21. (QAPP pg 14) Are all field data sheets filled out completely? *yes*
22. (QAPP pg 14-15) Are the completed field sheets signed? *yes*
23. (QAPP pg 15) Is this a replicate visit (for precision of field measurements)? *yes*
24. (QAPP pg 15) If evidence of recreation use is obvious, do the Field Team Leader and the Field QC Officer agree? *NA*
25. (QAPP pg 18) Does the field team have documentation or other evidence that the measurement equipment is in working order? *yes*
26. (QAPP pg 19) Does the field team have documentation or other evidence that the GPS unit has been checked for accuracy? *no*

Signatures

We, the undersigned, hereby affirm, to the best of our knowledge, that this audit occurred and that the marking on this checklist accurately represent the audit results.

Auditor: *Tom P. Miller* 21 Apr 05

Field Team member 1: *Chris Miller* 04/21/05

Field Team member 2: *Elizabeth Lee Yarbrough* 4-21-2005

Field Team member 3:

Field Team member 4:

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2005 MAY 23 PM 2: 59

WATER PROTECTION PROGRAM

WATER PROTECTION PROGRAM

Age:
30 Feb.

Uses Observed*:

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input checked="" type="checkbox"/> Other:

Describe: (include number of individuals recreating, frequency of use, photo-documentation of evidence of recreational uses, etc.)

STREAM REACH LOCATED WITHIN COW PASTURE.

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Campgrounds
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> No trespass sign	<input checked="" type="checkbox"/> Fence	<input checked="" type="checkbox"/> Steep slopes	<input checked="" type="checkbox"/> Other: CATTLE / DAIRY FARM	

Evidence of Human Use*:

<input checked="" type="checkbox"/> Roads	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input checked="" type="checkbox"/> Livestock Watering	<input type="checkbox"/> RV / ATV Tracks
<input type="checkbox"/> Rope swings	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle
<input type="checkbox"/> Other:				

Site Locations Map(s): Attach a map of entire segment with assessment sites clearly labeled. Mark any other items that may be of interest. (Include photographs)

*Some of this information is not intended to directly influence a decision on any one particular recreational use analysis but may point to conditions that need further analysis or that effect another use.

Stream Morphology:

Upstream View Physical Dimensions: 0.09m, 0.1m, 0.61m, 0.75m, 0.26m

<input type="checkbox"/> Riffle	Width (ft):	Length (ft):	Avg. Depth (ft):	Max. Depth (ft):
<input type="checkbox"/> Run	Width (ft):	Length (ft):	Avg. Depth (ft):	Max. Depth (ft):
<input checked="" type="checkbox"/> Pool	Width (ft): <u>5.4m</u>	Length (ft): <u>20m</u>	Avg. Depth (ft): <u>0.524m</u>	Max. Depth (ft): <u>0.75m</u>
<input checked="" type="checkbox"/> Flow Present?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	Estimated (ft ³ /sec): <u>slow moving pool</u>	

Downstream View Physical Dimensions: 0.1m, 0.2m, 0.22m, 0.28m, 0.09m

<input type="checkbox"/> Riffle	Width (ft):	Length (ft):	Avg. Depth (ft):	Max. Depth (ft):
<input type="checkbox"/> Run	Width (ft):	Length (ft):	Avg. Depth (ft):	Max. Depth (ft):
<input checked="" type="checkbox"/> Pool	Width (ft): <u>5m</u>	Length (ft): <u>20m</u>	Avg. Depth (ft): <u>0.178m</u>	Max. Depth (ft): <u>0.28m</u>
<input type="checkbox"/> Flow Present?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	Estimated (ft ³ /sec): <u>VERY SLOW MOVING POOL</u>	

Substrate*: (These values should add up to 100%.)

<u>0</u> % Cobble	<u>20</u> % Gravel	<u>40</u> % Sand	<u>30</u> % Silt	<u>10</u> % Mud/Clay	<u>0</u> % Bedrock
-------------------	--------------------	------------------	------------------	----------------------	--------------------

Aquatic Vegetation*: (note amount of vegetation or algal growth at the assessment site)

<u>ALGAE PRESENT UNDER DEBRIS</u>

Water Characteristics*: (Mark all that apply.)

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input checked="" type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

Comments: Please attach additional comments (including information from interviews) to this form.

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that effect another use.

I, the undersigned, hereby affirm to the best of my knowledge, that all information reported on this UAA datasheet is true and accurate.

Signed: Elizabeth de Yarbrough Date: 04-20-05

Organization: TOTNA TECH INC. Position: ASSOCIATE SCIENTIST

Elizabeth de Yarbrough 4-20-05



Field Data Sheets for Recreational Use Stream Surveys

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Data Sheet B - Site Characterization

2005 MAY 23 PM 2:59

(A separate data sheet must be completed for each site) WATER PROTECTION PROGRAM

ACC 13.9

Missouri WBID #: <u>216 Revisit</u>	Site Location Description:	
Site GPS Coordinates: <u>N38.54390 W093.60224</u>	<u>Rt 2 overpass</u>	
Date & Time: <u>4-21-2005 8:55 AM</u>	Facility Name: <u>Middle Fk Tebo CR</u>	
Personnel: <u>CB, ELY</u>	Permit Number:	
Current Weather Conditions: <u>Partly Cloudy 68°</u>	Weather Conditions for Past 7 days:	
Photo Ids: Upstream: <u>1754A 630</u>	Downstream: <u>1753A 629</u>	Other:

Uses Observed*:

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:

Describe: (include number of individuals recreating, frequency of use, photo-documentation of evidence of recreational uses, etc.)

*Maximum depth of pool 0.90m in ^{UP}stream portion (Extra data within reach)
4-21-2005

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Campgrounds
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> No trespass sign	<input checked="" type="checkbox"/> Fence	<input checked="" type="checkbox"/> Steep slopes	<input type="checkbox"/> Other:	

Evidence of Human Use*:

<input checked="" type="checkbox"/> Roads	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input checked="" type="checkbox"/> Livestock Watering	<input type="checkbox"/> RV / ATV Tracks
<input type="checkbox"/> Rope swings	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle
<input type="checkbox"/> Other:				

Site Locations Map(s): Attach a map of entire segment with assessment sites clearly labeled. Mark any other items that may be of interest. (Include photographs)

*Some of this information is not intended to directly influence a decision on any one particular recreational use analysis but may point to conditions that need further analysis or that effect another use.

* Additional data from area within reach

Stream Morphology:

Upstream View Physical Dimensions: 0.10, 0.15, 0.62, 0.78, 0.32 in meters

<input type="checkbox"/> Riffle	Width (ft):	Length (ft):	Avg. Depth (ft):	Max. Depth (ft):
<input type="checkbox"/> Run	Width (ft):	Length (ft):	Avg. Depth (ft):	Max. Depth (ft):
<input checked="" type="checkbox"/> Pool	Width (ft): <u>5.3m</u>	Length (ft): <u>20m</u>	Avg. Depth (ft): <u>0.394m</u>	Max. Depth (ft): <u>0.78m</u>
<input checked="" type="checkbox"/> Flow	Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Estimated (ft ³ /sec):	

Downstream View Physical Dimensions: 0.15, 0.18, 0.20, 0.25, 0.16 in meters

<input type="checkbox"/> Riffle	Width (ft):	Length (ft):	Avg. Depth (ft):	Max. Depth (ft):
<input type="checkbox"/> Run	Width (ft):	Length (ft):	Avg. Depth (ft):	Max. Depth (ft):
<input checked="" type="checkbox"/> Pool	Width (ft): <u>5.0m</u>	Length (ft): <u>20m</u>	Avg. Depth (ft): <u>0.188m</u>	Max. Depth (ft): <u>0.25m</u>
<input checked="" type="checkbox"/> Flow	Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Estimated (ft ³ /sec):	

Substrate*: (These values should add up to 100%.)

<u>0</u> % Cobble	<u>10</u> % Gravel	<u>30</u> % Sand	<u>30</u> % Silt	<u>30</u> % Mud/Clay	% Bedrock
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Aquatic Vegetation*: (note amount of vegetation or algal growth at the assessment site)

<u>Algae growing through out</u>

Water Characteristics*: (Mark all that apply.)

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input checked="" type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input checked="" type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input type="checkbox"/> None	<input type="checkbox"/> Other:

Comments: Please attach additional comments (including information from interviews) to this form.

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that effect another use.

I, the undersigned, hereby affirm to the best of my knowledge, that all information reported on this UAA datasheet is true and accurate.

Signed: [Signature] Date: 04-21-05

Organization: TEIRA TECH INC. Position: ASSISTANT SCIENTIST

QC ELY 4-21-2005



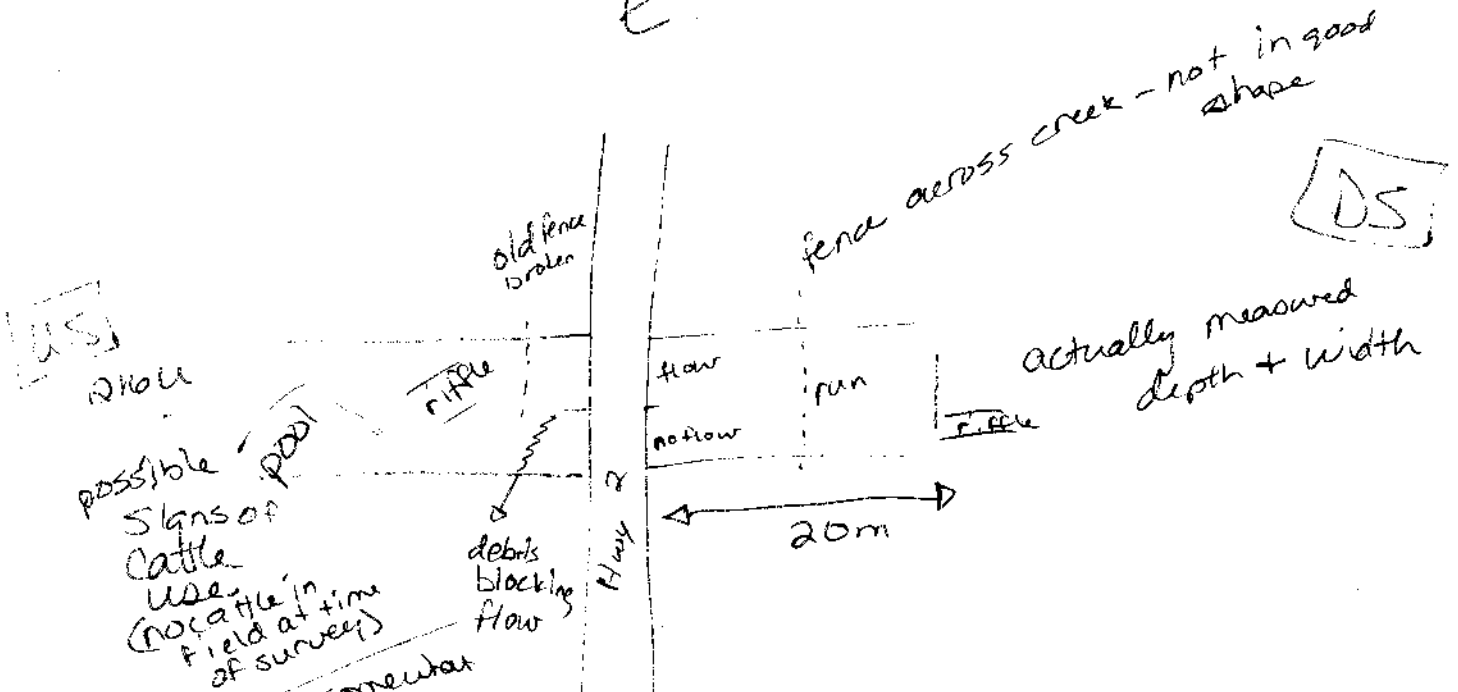
MISSOURI RECREATIONAL USE STREAM SURVEY FIELD AUDIT CHECKLIST

Evaluation Date: 4-20-05 E. Tebo Co.		
Audit Team Member(s):		
Name	Organization	Phone
Stacia Bax	MDNR	573-526-7838
Site ID: 216	Stream Name:	
Field Team Members		
1 Chad	3	5
2 Lee	4	6
Other Observers Present During Evaluation:		
Name	Organization	Phone

RECEIVED
2005 MAY 23 PM 3:00
WATER PROTECTION PROGRAM

Finished 9:19 am

E



- Murky water somewhat clearer in riffle area

- some trash in creek but no signs of human recreational use

- Box culvert + east branch (double bridge.)

used a marker board to indicate silt in picture.
2/6/17

- cobble 10%	- gravel 25%	US	
- some woody debris 5%	- silt 60%		
- some silt 15%	- gravel 15%		
	- silt 75%		5% debris
	- cobble 5%		

DS - Farm land immediately around cr.
good riparian zone

US - trees little more removed from riparian zone
- stream bank seems a little more unstable

AUDIT CHECKLIST

Site # 216
Butler WWTP

GPS used to obtain fix at or near site?	<input checked="" type="radio"/> Y	<input type="radio"/> N	<input type="radio"/> N/A
GPS data recorded on field form?	<input checked="" type="radio"/> Y	<input type="radio"/> N	<input type="radio"/> N/A
Photographs of site taken (if appropriate)?	<input checked="" type="radio"/> Y	<input type="radio"/> N	<input type="radio"/> N/A
Placard with site ID printed on it is the first photograph?	<input checked="" type="radio"/> Y	<input type="radio"/> N	<input type="radio"/> N/A
Picture file number recorded on Field Form?	<input checked="" type="radio"/> Y	<input type="radio"/> N	<input type="radio"/> N/A
Mean channel width at X-site determined based on measurement?	<input checked="" type="radio"/> Y	<input type="radio"/> N	<input type="radio"/> N/A
Area around site inspected for evidence of primary contact recreational and other human uses?	<input checked="" type="radio"/> Y	<input type="radio"/> N	<input type="radio"/> N/A
Pictures of evidence of uses taken?	<input type="radio"/> Y	<input type="radio"/> N	<input checked="" type="radio"/> N/A
Picture file number recorded on field forms?	<input checked="" type="radio"/> Y	<input type="radio"/> N	<input type="radio"/> N/A
Measured upstream channel width at representative transect?	<input checked="" type="radio"/> Y	<input type="radio"/> N	<input type="radio"/> N/A
Measured downstream channel width at representative transect?	<input checked="" type="radio"/> Y	<input type="radio"/> N	<input type="radio"/> N/A
Measured average depth in upstream portion of the site?	<input checked="" type="radio"/> Y	<input type="radio"/> N	<input type="radio"/> N/A
Measured maximum depth in downstream portion of the site?	<input checked="" type="radio"/> Y	<input type="radio"/> N	<input type="radio"/> N/A
Was a reasonable effort made to locate deepest point at each site?	<input checked="" type="radio"/> Y	<input type="radio"/> N	<input type="radio"/> N/A
Velocity measured in the upstream portion of the site using a neutrally buoyant object along measured length timed and recorded correctly for at least three trials?	<input type="radio"/> Y	<input checked="" type="radio"/> N	<input type="radio"/> N/A
Velocity measured in the downstream portion of the site using a neutrally buoyant object along measured length timed and recorded correctly for at least three trials?	<input type="radio"/> Y	<input checked="" type="radio"/> N	<input type="radio"/> N/A
Does auditors assessment of substrate types and proportions at the site agree with that of the field team?	<input checked="" type="radio"/> Y	<input type="radio"/> N	<input type="radio"/> N/A
Were interviews conducted with available residents?	<input type="radio"/> Y	<input type="radio"/> N	<input checked="" type="radio"/> N/A
Are the field sheets filled out completely and signed at the end of the site assessment?	<input checked="" type="radio"/> Y	<input type="radio"/> N	<input type="radio"/> N/A
Did the field team QC officer inspect the field forms for completion prior to leaving the site?	<input checked="" type="radio"/> Y	<input type="radio"/> N	<input type="radio"/> N/A
Overall, were the field sampling protocols followed correctly?	<input checked="" type="radio"/> Y	<input type="radio"/> N	<input type="radio"/> N/A

not much flow except in little area.

SIGNATURES

Stacy Bay 4/29/05
Evaluator Date

Team Representative Date